

Applicant respectfully submits the Examiner's position regarding the obviousness of the oilfield tubular connection having the specific functional relationship set forth in Claim 1 is both factually and legally unsupported. Applicant recognizes that a claim is not patentable merely because it sets forth a desired functional relationship between the various components, but Applicant also submits that it was not obvious to one of ordinary skill in the art of oilfield tubular connections to design the connection as specifically set forth in Claim 1.

Thousands if not hundreds of thousands of oilfield tubular connection designs have been made. A fraction of those designs have been commercially successful. A person designing an oilfield tubular connection may consider numerous parameters that relate to the anticipated loading of that connection when placed in a wellbore. Engineers thus may consider, among other parameters, the tensile load, torsional load, the anticipated fluid pressure and pressure differential across the connection, bending as a function of the moment of inertia, and the weight of the connection itself. Additionally, the connection is lightweight, is capable of withstanding high tensile and torsional loading and a high pressure and pressure differential, and is not susceptible to failure under highly adverse buckling conditions.

The functional relationship set forth in Claim 1 with respect to the oilfield connection of the present invention addresses only selected ones of these parameters, namely tensile loading, buckling and moment of inertia, and torsional load. If mere optimization were involved, the design engineer would address all of the above listed parameters and optimize all those parameters. That is not the case for this invention.

Applicant submits that the selected combination of criteria as set forth above may lead to a better connection, but still would not lead to the specific functional relationship of the connection as set forth in Claim 1. The present invention speaks not only to parameters that affect the structural integrity of the connection under downhole conditions, it also addresses the problem of hydraulics of the drill pipe and the connection. Absent Applicant's disclosure, the skilled worker would have no motivation to consider only the parameter selected by Applicant, much less arrive at the claimed ratio using those selected parameters and the hydraulics associated with the connection. A preferred oilfield connection according to this invention recognizes and uniquely balances the affect of both mechanical and hydraulic considerations, taking

into account the tool joint OD, the pipe OD, the tool joint ID, and the pipe ID, and has expressed that preferred relationship in a manner which excludes all the prior art technology directed to oilfield threaded connections. This invention may or may not change an industry, but it is clearly not obvious to one of ordinary skilled in the art.

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As an indication of the nonobviousness of the present connection, Applicant submits that the technology has existed for over a decade to make such an improved connection, yet not one in the businesses involved in the manufacture of oilfield tubulars has supplied such a connection to the industry, nor has the connection been described in a prior art patent or other printed publication. The present invention is being practiced, however, by Grant Prideco, LP, and initial sales of the connection and the resulting commercial success of this invention buttress Applicant's position regarding the nonobviousness of the claims. More specifically, Grant Prideco records indicate that the present invention was first sold in April of 1999, and that sales orders to date have been over \$20,000,000.00. Advertising for the invention during this same time period has been nominal, and has been less than \$20,000.00. Moreover, Applicant assumes that the Examiner recognizes the introduction and commercial acceptance of a new product into an established industry with established products, such as the oilfield services industry and tubular connection technology and products, requires time. Accordingly, sales to date, when considered in that light, point toward overwhelming commercial success of the invention.

In view of the above, early allowance of the application is requested.

Respectfully submitted,

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I hereby certify that this correspondence and all referenced enclosure(s) are being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on November 13, 2000.

By: *[Signature]*